REMARKS

Claims 1-14 are in the present application.

The Office Action rejection of claims 1-8 & 13, 14 as obvious under 35 USC 103 (a) over Vaudo et al ('581) in view of Hirota et al ('299 A 2), is respectfully traversed.

As noted previously, Vaudo et al teach passing HCl over high purity gallium to form GaCl, which is later reacted with ammonia to form GaN. However, Vaudo et al, as noted by the Office Action, does not teach contacting a heated metal with iodine vapor.

The Office Action then cites Hirota et al which teaches employing iodine as a halogen molecule instead of HCl and states it would have been obvious to so modify Vaudo et al in view of the Hirota reference.

However, Hirota et al teaches a closed system (and not a flow-through system) with only nitrogen being added to the system periodically as it is depleted. Any impurities that are initially in the system with the halogen or metal (e.g., gallium, aluminum or indium) will be continuously recycled until they are trapped in the growing nitride film.

The above points were noted previously.

Also, the Hirota patent is based on plasma-excitation of nitrogen to create mono-atomic nitrogen. This process requires a high voltage apparatus for cracking the N_2 molecule. Such process is well removed from applicants' process of claims 1 et seq., which employs ammonia (NH_3) in a chemical reaction with Gallium iodide (GaI) which breaks down the ammonia to form GaN on the wafer substrate.

That is, it is believed that the Hirota cracking process, which takes place in a closed system, does not suggest a combination with the Vaudo et al flowing HCl patent unless one has in view applicants' own disclosure.

That is, to combine references in a prima facie obviousness rejection:

1. There must be some suggestion or motivation in the references to combine reference teachings;

2. There must be a reasonable expectation of success and

3. The prior art references, when combined, must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success, must both be found in the prior art and not be based on applicants' disclosure; In re Vaeck, 20 USPQ 2nd 1438 (1991), as noted in MPE P 706.02(j).

Thus, there is no indication that iodine vapor cracked in a plasma system would be suitable as chunks in a boat in a flowing CVD system.

Also, claims 2-8 and 13, 14, are believed distinguished over the above applied references in view of their dependence from claim 1, which is believed novel thereover, as discussed above.

The Office Action rejection of claims 9-12 as obvious under 35 USC 103 a) over Vaudo et al ('581), in view of Hirota et al ('299 A2) and further in view of Jain ('163), is respectfully traversed.

In looking at the above three patents, it is clear that they have in common that they employ but one boat and a spaced substrate. The wool plug of the Jain patent does not count as a second boat. Employing a two boat process is a significant difference because with two boats one can control the temperature of the Iodine boat and thus its vapor pressure and one can control the temperature of the metal boat and the metal pick-up rate. This means the growth rate, thickness and quality of the MN product can be controlled in a fine tuning process not achievable in a one-boat process.

Thus, it is believed improper to combine Jain's one boat with Vaudo's one boat to arrive at Applicants' two boat process.

The Office Action rejection of claims 1-14, under the judicially created doctrine of obviousness-double patenting in view of claims 1-11 of USP 6,676,752 to Suscavage et al, in view of Vaudo et al ('581), is respectfully traversed.

That is, as a terminal disclaimer, relative to the above rejected claims, is filed herewith, which links the term of the above application claims to the term of the above patent claims, this rejection is believed met.

Accordingly, it is requested that the fee of $110 for such disclaimer be charged to Deposit Account no. AF 01-0465.

In view of the foregoing, the claims of record, as previously amended and as now terminally disclaimed over the above patent, are believed in condition for allowance.

In accordance with Section 714.01 of the M.P.E. P., the following information is presented in the event that a call may be deemed desirable by the Examiner: to Thomas C. Stover, A/C 781-377-3779.

Respectfully submitted,

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